IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

SKYLINE SOFTWARE SYSTEMS, INC.,	)	
Plaintiff,	)	
	)	
v.	)	CIVIL ACTION NO. 04-1129-DPW
	)	
KEYHOLE, INC. and GOOGLE, INC.,	)	
Defendants.	)	
	)	

DECLARATION OF AHARON (RONNIE) YARON

I, Aharon (Ronnie) Yaron, on oath depose and state that:

1.   I am the President of Plaintiff Skyline Software Systems, Inc. ("Skyline") and one of the inventors on the patent in suit. I submit this Declaration in support of Skyline's Motion for a Preliminary Injunction.

2.   Skyline, originally called Compro Games, Ltd., formed in 1992 as a computer games company based in Israel. By the late-1990s, the company changed its name to Skyline Software Systems, Ltd and began to focus its efforts on developing this same technology for use in three dimensional (3D) computer graphics and streaming visualization data. Since 1999, Skyline has offered a wide variety of products incorporating this technology to consumers for commercial and defense applications.

3.   Skyline quickly became a technology leader in the field of streaming 3D visualization technology. Skyline's pioneering efforts resulted in a number of patents relating to computer rendering of 3D images.   Based on its extensive research and development efforts, Skyline Software Systems, Ltd. applied for a U.S. patent covering its technological advancements on February 26, 1999. On December 17, 2002, United

States Patent No. 6,496,189 (the '189 Patent), entitled "Remote Landscape Display and Pilot Training," was duly and legally issued to Skyline Software Systems, Ltd. for an invention relating to digital imaging devices. The '189 Patent was assigned to Plaintiff Skyline in October 2003.

4.   Meanwhile, Skyline Software Systems, Ltd. was building its business through the sale of its line of "Terra" software products, *e.g.*, Skyline's Terra Gate, TerraBuilder and TerraExplorer Pro products, which remain on sale today. In 2001, In-Q-Tel, a private enterprise funded by the Central Intelligence Agency, became very interested in investing in Skyline's technology to further refine 3D visualization products to be used for defense applications. In-Q-Tel, however could not invest U.S.-defense dollars in an Israeli-based company. By late 2002, the National Geospatial-Intelligence Agency ("NGA"), a U.S. Department of Defense combat support agency, had become one of Skyline's largest customers. However, due to the fact that Skyline Software Systems, Ltd. was not a U.S.-based company, the NGA issued a "sunset policy" requiring that, within one year, it would remove all Skyline products from their network and would not allow anyone using Skyline to access their network.

5.   As a result of these pressures, in August 2003, Skyline decided to move its operations to the United States. Skyline Software Systems, Inc. incorporated in the State of Delaware and established its corporate headquarters in the Commonwealth of Massachusetts. Skyline obtained all of the assets from Skyline Software Systems, Ltd., including the '189 Patent. In light of Skyline's incorporation in the United States, the NGA rescinded the "sunset policy." Since incorporating in the United States, Skyline's business, and its product offerings, have continued to grow.

6.   Defendant Keyhole, Inc. ("Keyhole") entered the 3D visualization market

in approximately 2001. After deciding that it could not invest in Skyline Software

Systems, Ltd. because it was not based in the United States, In-Q-Tel, on behalf of the

NGA, made a substantial investment in Keyhole. On information and belief, I understand

that In-Q-Tel asked Keyhole to attempt to replicate Skyline's product given the NGA's

ongoing need for Skyline's patented technology and the "sunset policy" issued by the

NGA at that time.   I also understand that Keyhole was asked to mirror or copy Skyline's

product using the In-Q-Tel/NGA investment.

7.   Prior to its acquisition by Defendant Google, Inc. ("Google"), Keyhole

and Skyline directly competed for the sale of 3D visualization products to similar

consumers. The products offered by Skyline and Keyhole were comparably priced, with

a low-end viewer product costing several hundred dollars to high-end enterprise solutions

priced in the tens of thousands of dollars.

8.   Following Google's acquisition of Keyhole, Google/Keyhole dramatically

reduced the cost of its consumer-based product. Although it initially announced that it

would charge a nominal free for its basic viewer product, it later decided to eliminate the

cost for that product altogether. As a result, millions of users a day are able to download

the Google Earth software and use the free and or low-cost Google Earth product to view

3D images around the globe. These users are becoming familiar and accustomed to

Google/Keyhole's graphic user interface and features. This consumer familiarity and

market penetration will make it more difficult to convince users later to switch to an

alternative vendor, such as Skyline. The apparent purpose of Defendants' marketing

efforts is to saturate the market, make the Google/Keyhole brand synonymous with 3D

visualization, and to eliminate its competitors.

9.   The same is true of the Defendants' commercial application, Google Earth

Pro. Google/Keyhole drastically cut the cost of its this product, as well. Keyhole used to

charge customers approximately $600 a year for a license to this product. Now

Google/Keyhole charges an annual fee of only $400. According to news reports and

information contained on the Google Earth website, Google/Keyhole has directed its

marketing efforts for this high-end product to commercial entities such as commercial

and residential real estate entities, architecture and engineering firms, insurance

companies, and media outlets. Of course, as a billion dollar entity, Google's marketing

reach and budget, particularly for this product, are significant.

10.   Google/Keyhole has also been aggressively moving into the defense

sector. Skyline has been informed by several of its defense customers that

Google/Keyhole is making sales pitches and product demonstrations to government

contractors and that Defendants are significantly expanding their sales force in those

markets. In fact, the Google Earth website confirms that Defendants are targeting their

products for use by government contractors, and non-governmental organizations.

Defendants are not only promoting their Google Earth Pro product to these entities, but

also their Google Earth Enterprise Solutions line of products, which is comprised of three

elements: Google Earth Fusion, Google Earth Server, and Google Earth EC (or

"Enterprise Client"). As reflected in the portion of the Google Earth website attached as

Exhibit 20 to the Declaration of H. Joseph Hameline, Esq., submitted in support of

Skyline's Motion for a Preliminary Injunction, Google Earth Fusions allows the user to

"integrate … data - raster (imagery), GIS, terrain, and points data." The Google Earth

Server "streams data to client software (Google Earth EC)." Google Earth EC allows

"viewing, printing, and data authoring" of 3D terrain data." Id. While Defendants do

not publish the cost of these Enterprise products, on information and belief, I understand

that these products are priced in the tens of thousands of dollars. Defendants' Google

Earth Enterprise Solutions products compete directly with those products offered by

Skyline, and are based on Skyline's proprietary and patented invention and technology.

11.   In addition to expansive invasion of the marketplace, I understand that

Google has also entered into an exclusive licensing arrangement with DigitalGlobe, a

high resolution that satellite data and information provider. DigitalGlobe is the premier

provider of high resolution satellite imagery, and the recognized source of high resolution

image data for this application. While there are a few other providers of satellite

imagery, none have the high resolution data held by Digital Globe (and now

Google/Keyhole). The result of Google/Keyhole's relationship with DigitalGlobe

effectively forecloses Skyline ability to obtain the most current, high resolution satellite

imagery for use in its 3D terrain imaging products.

12.   Defendants have been able to enter (and now dominate) the 3D imaging

market based and reap the benefits of Skyline's patented invention by infringing the '189

Patent. Skyline's invention solved numerous problems that were present in prior art 3D

visualization systems. For example, before the Skyline invention, substantial amounts of

3D terrain imagery data could not be provided easily or quickly over the over the Internet

or other communication devices. Three dimensional data required to stimulate travel

over realistic terrain and to zoom into view higher resolution terrain areas is very large

and, due to the sheer volume of the data, it was not practicable to stream such data over the Internet or other communication link given the restraints on the methods of downloading such information from a server to a client available at the time.

13.   Skyline pioneered a method and apparatus for computerized rendering and visualization of 3D terrain images and related data associated with the images by which to efficiently stream data describing 3D terrain from a server to a client over a network, such as the Internet, and rendering a more seamless view of the 3D terrain to a user of the client machine. In the '189 Patent, the data representing 3D terrain is divided into what the Patent calls "data blocks." Data blocks may include topographical data, such as elevation or altitude data, and/or image data from aerial or satellite photography, and/or data objects associated with particular locations in or as part of the terrain (such as labels, lines or 3D objects).   The blocks are referenced using coordinates, such as x, y, (longitude, latitude), height and/or resolution level and are organized hierarchically based on the different resolution levels by dividing the data into a grid or blocks.

14.   This hierarchical structure can be described as follows: When the user zooms in to view a specific area in the terrain, the server provides the client computer with data blocks for that terrain area. If the user had previously downloaded data blocks for that area, they may be stored in the client's local memory and may be used to display the requested terrain. Use of the stored data in the local memory allows the data blocks to be accessed quickly. If the requested data block is not available in local memory at the desired resolution, a block of the requested area with a relatively low level of resolution is downloaded. This data block may contain a lesser amount of detail than sought by the user, however, it can be downloaded and displayed quickly, thereby eliminating any time

period when the user is forced to view a frozen or blank computer screen. Resolution

blocks with successively higher resolution levels are then downloaded to sharpen the

image rendered at the client, until the block matching the requested location and indicated

resolution has been downloaded. As the user indicates higher resolution images by, for

example, moving from a view of a particular city to a neighborhood, higher resolution

blocks are downloaded to the client and the renderer on the client machine displays an

image with increasing resolution. Exhibit 9 to the Hameline Declaration submitted in

support of Skyline's Motion shows screen shots from the product sold by Skyline which

practices the inventions of the '189 Patent.

15.   Defendants' Google Earth products perform in this same way. I have

reviewed Google Earth products and certain of their user manuals and publicly available

descriptions of their products. Google Earth users are able to specify particular

coordinates in the terrain (such as a city or street location) and then zoom into view high

resolution terrain data without experiencing any delay while the client receives the terrain

data from the server. This process is best illustrated by the series of screen shots attached

as Exhibit 10 to the Hameline Declaration, which shows the user interface of the Google

Earth product, with a location in the terrain selected at a desired zoom level, and

specifically showing the progressively higher resolutions being rendered as higher

resolution data blocks are streamed to the client from a remote server providing

DigitalGlobe data. In the first screen shot, the data blocks are at a low level resolution,

which is retrieved from local memory. As a result, the image appears blurry. In the

subsequent screen shots, data blocks containing higher resolution levels have been

streamed to the client from the remote server and the rendered image appears to sharpen

and become more defined. By the fourth screen shot, data blocks containing the highest

resolution levels have been downloaded and the user is able to view highly defined

terrain images. Even though the Google Earth product has rendered some form of the 3D

terrain on screen in the earlier frames, the Streaming status bar near the lower center of

the screen indicates that the Google Earth client continues to receive streamed image data

from the server, thereby allowing the higher resolution images in the latter frames. The

Google Earth products perform this operation in the manner described in the '189 Patent.

For comparison with the Google Earth infringing product described above, Exhibit 9 to

the Hameline Declaration shows a similar set of screen shots from the Skyline system,

which embodies the inventions of the '189 Patent, and which receives successively

higher resolution data blocks to render an image of a selected location representing 3D

terrain.

      16.   By reaping the benefits of Skyline's patented invention, Google/Keyhole

have been able to market their product aggressively to consumers. The result of

Google/Keyhole's actions have been to impair significantly and immediately Skyline's

ability to conduct its business. Google/Keyhole has been using Skyline's patented

technology, which Keyhole refined using funds earmarked for it to mirror Skyline's

product. Google has now invested its enormous marketing process and presence on an

effort to eliminate Skyline from the market.   At virtually every sales opportunity, Skyline

is told that Google has visited or is scheduled to visit that potential client. Customers ask

why they should purchase from a small company as opposed to a billion dollar entity that

is offering the product at a greatly discounted rate.

17.   After a customer has begun to use a particular software product, and has

grown accustomed to the features and graphical user interface, it is very difficult to

convince them to change. In addition, Google/Keyhole is depressing the price point and

attempting to saturate the market with a lower priced product. At the same time, Google

has entered into exclusive arrangement with the vendor of highest quality commercial

satellite data. All of these efforts are having an immediate effect and I believe will cause

Skyline irreparable harm.

Signed under the penalties of perjury this 3rd day of January, 2006.

/s/ Aharon (Ronnie) Yaron_____
Aharon (Ronnie) Yaron

Certificate of Service

I hereby certify that on January 4, 2006, I caused a true and accurate copy of the foregoing document to be served upon all counsel of record for each party, by complying with this Court's Administrative Procedures for Electronic Case Filing.

/s/ H. Joseph Hameline_____
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